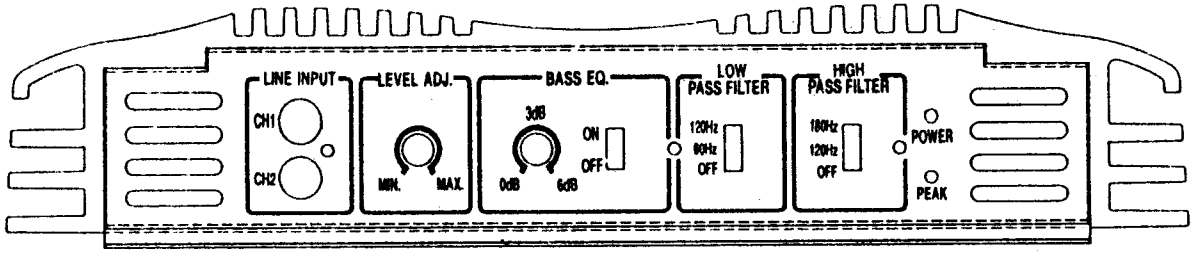
Sherwood

OPERATION MANUAL

XA-5450

BRIDGEABLE 2 CHANNEL AMPLIFIER



Congratulations on your Purchase !

Your new high fidelity bridgeable/stereo amplifier is designed to deliver maximum enjoyment and years of trouble free service. Please take a few moments to read this manual thoroughly. It will explain the features and operation of your unit and help insure trouble free installation.

Features

- Tri-power
- Bridgeable/mono
- Two ohm stable per channel
- Gold plated screw terminals
- Variable Bass EQ from +0 dB to 6 dB gain at 45 hertz
- Low/line level input
- Gold plated RCA jacks
- Electronic high pass crossover
- Electronic low pass crossover
- Mos-fet power supply
- Anti-thump circuit
- Power LED
- Peak LED
- Plug in fuse
- Built-in cooling fan

Precautions: Read First !

- If after reading the directions you feel uncomfortable about installing the amplifier in your car, or not equipped or competent to do so, you should have the amplifier installed by an authorized Sherwood Dealer/Installer. It's your car !

- Negative battery terminal must be disconnected before any electrical connections are made.

- Be sure to choose a location that provides substantial ventilation for the amplifier. The most preferred locations would be in your car's trunk, under the front seats or on the back wall of a truck.

- The location chosen should provide at least 2" of clearance above the amplifier for adequate ventilation.

- If the amplifier is to be mounted vertically, be sure that it is in a place where adequate air will flow along the length of its heatsink fins for cooling.

- NEVER mount the amplifier up side down, this will cause the heat to rise back into the amplifier causing thermal shutdown or possible permanent damage.

- NEVER mount the amplifier in a location that is subject to direct sunlight or exposed to moisture.

- Be sure to mount the amplifier to a strong, solid surface which will not give way under the stress of a sudden stop or accident.

- Make sure that the mounting screws will not penetrate the gas tank, brake and fuel lines, wiring or other critical parts of your car when installed.

- NEVER operate the amplifier without the proper power and ground wire. (10 gauge minimum)

- NEVER operate the amplifier without proper fusing. Fuse holder must be located within 18 ′ from the battery. This fuse is to protect the car not the electronics. In case of a short, the fuse will blow instead of the wire burning up. Using other than the recommended fuse ratings at the battery and at the amplifier may cause damage to the amplifier and will void your warranty.

- Do not run wiring underneath or outside the car since such exposure to the elements may cause the insulation to deteriorate rapidly, resulting in short-circuits and/or intermittent operation. All cables should be run beneath carpets and inside trim pieces.

- To help minimize interference, it is best to run the power cables along the opposite side from the audio cables.

- Wherever wires pass through metal, rubber or plastic grommets must be used to prevent the metal from wearing through the insulation and causing a short.

- Whenever possible, use cable ties, mounting clamps and similar wiring aids (available from an electrical supply or auto parts store). Adding stress relief loops to the wiring is also advisable to prevent straining or breakage.

- It is best to test the system before the amplifier is mounted and interior of car is reassembled.

- If the temperature inside your car reaches extreme levels (such as sitting locked up for several hours in the hot sun or exposed to a very cold winter's day) the amplifier may go into protection mode and shut off. Leave the unit off until the ambient temperature returns to normal.

- The XA-5450 operates with any vehicle using a 12-volt negative ground system. If you are not sure of the type of electrical system in your vehicle, consult your authorized Sherwood dealer or qualified mechanic.

- NEVER ground the speaker leads and NEVER allow the speaker leads to come in contact with each other. Speaker wire should be 18 gauge or larger.

- Remote turn on wire must be switched by the radio. If the radio does not have a remote turn on or antenna output, connect to wire that has a positive 12-volts when the key is turned to the accessory position. If the amplifier does not turn off the battery will die.

- Do not listen to high volumes for extended periods of time or hearing damage may occur.

Installation

MOUNTING:

1. After reading precautions decide where you are going to install the unit. Also, see Fig. 1 and Fig. 2.
2. Once the location has been determined, place the amplifier in position. Using a felt tip pen or pencil mark the six holes to be drilled for mounting. NEVER use the amplifier as a template for drilling. It is very easy to damage the amplifier surface in this manner.
3. Remove amplifier. Drill six 3.6 m.m.(9/64 inch) diameter holes into mounting surface.
4. If possible test the system operation before final mounting of the amplifier.
5. Mount the amplifier using the supplied 6 self threading screws.

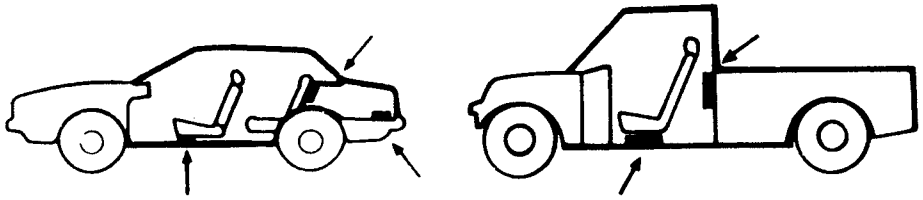


Fig. 1 Mounting Position

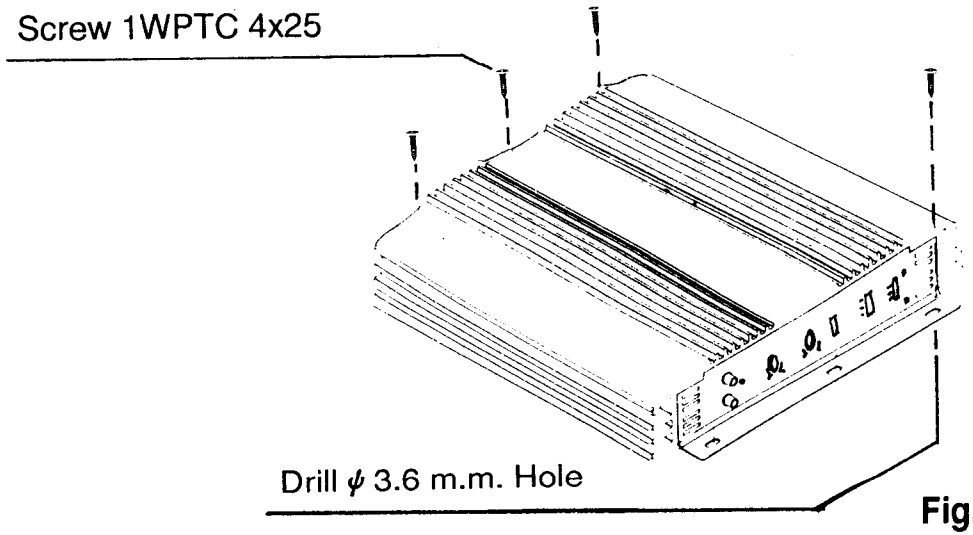


Fig. 2 On-Chassis Mounting

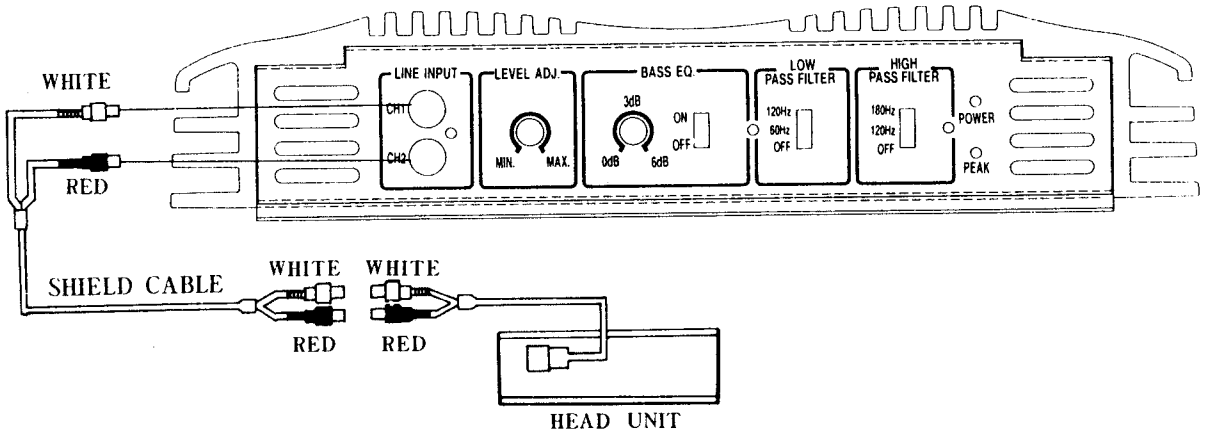
Input Connections

This amplifier will accept low level inputs only. Low level is the same as line level or preamp level. Low level signal is carried through RCA cables. Be sure that the head unit is equipped with the Low Level outputs.

1. Low level/line input-Connect RCA cables from head unit, or other signal processor, to the line level input on the amplifier. See Fig. 3. Low level input Connections.

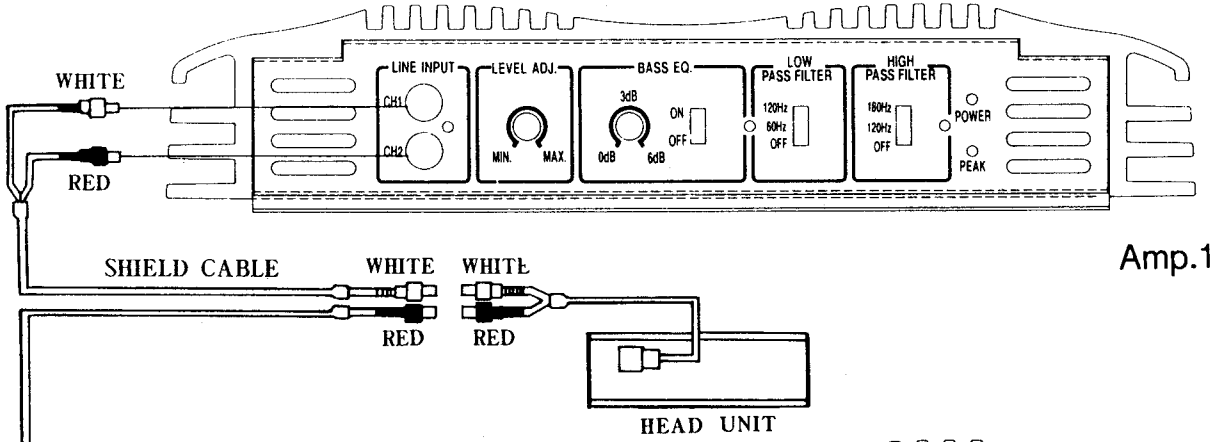
If the amplifier is to be used to drive one speaker in the bridged mode, both inputs must be used.

(1) SINGLE AMPLIFIER CONNECTION



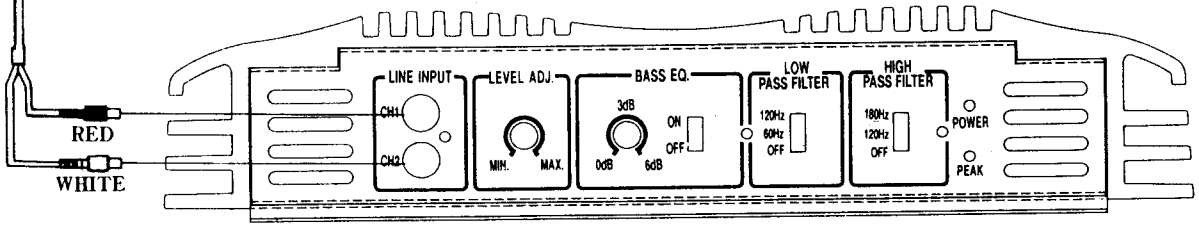
(2) STEREO TWO AMPLIFIER CONNECTION

Amp Used to Power Left Speaker



Amp.1

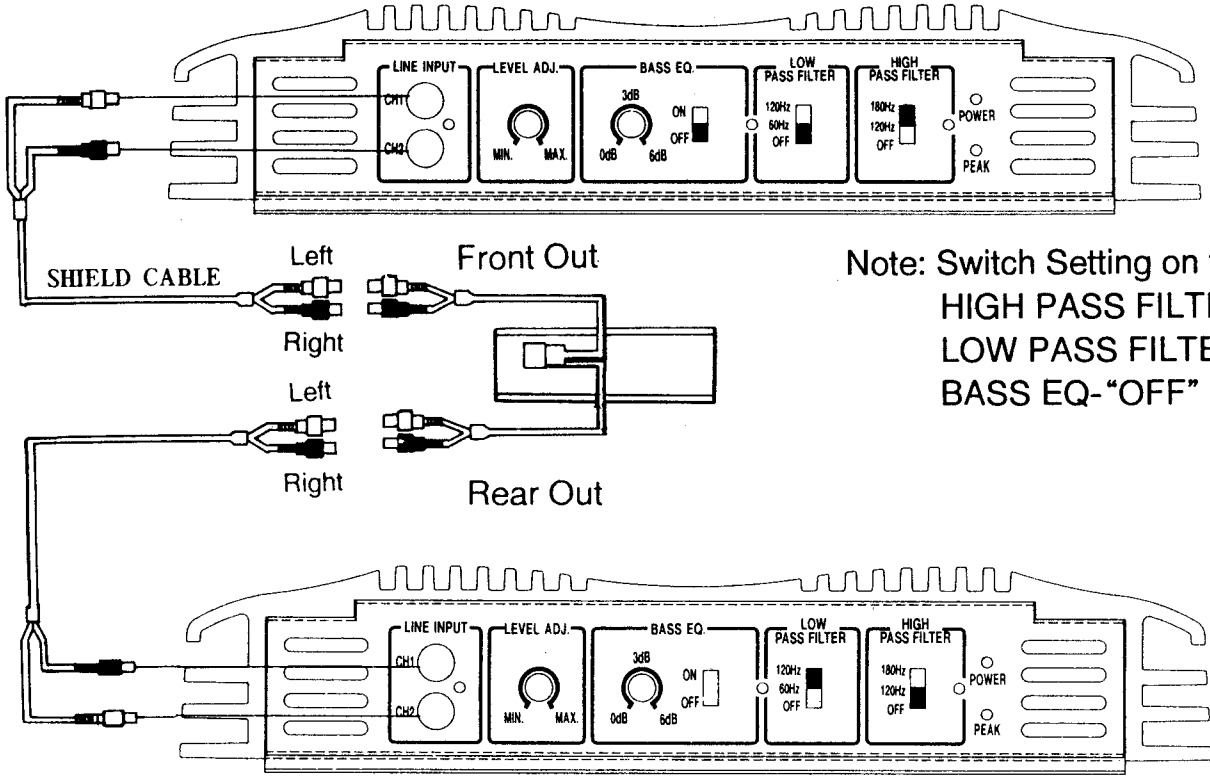
Amp Used to Power Right Speaker



Amp. 2

Fig. 3 Low Level Input Connections

(3) TWO AMPLIFIER 2-WAY SYSTEM



Amp used to power
"full Range" speakers
or coaxials

Note: Switch Setting on front side
HIGH PASS FILTER-"120" or "180"
LOW PASS FILTER-"OFF"
BASS EQ-"OFF"

Amp used to power
Subwoofers
or coaxials

Note: Switch settings on front side
HIGH PASS FILTER-"OFF"
LOW PASS FILTER-"60" or "120"
BASS EQ-"OFF" or "ON"
Adjust BASS EQ
Level as needed

Speaker Connections

This amplifier can operate in either one, two or three channel mode. The minimum impedance for two channel operation is 2 ohms per channel. The minimum impedance for single channel (bridged/mono) operation is 4 ohms. Three channel tri-power is referred to stereo and mono at the same time. Minimum impedances remain the same for three channel (satellite/subwoofer) systems as long as proper passive crossovers are used.

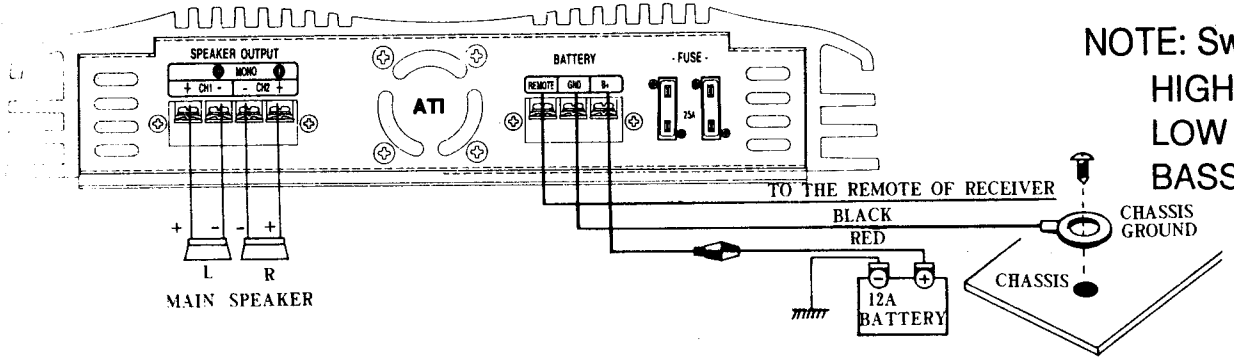
Connect right and left speaker wires to corresponding speaker output terminals of the amplifier. Be sure to have the positive wire from the speaker to the positive speaker terminal of the amplifier and the negative wire from the speaker must connect with the negative speaker terminal of the amplifier. Reversing any of these connections will result in the speaker cones moving out of phase which causes bass cancellation. See Fig. 4. Speaker Output Connections.

Tri-Power Speaker Connections

With the extreme flexibility of the Sherwood XA-5450, we highly recommend that you carefully design the entire system BEFORE its installation. The amplifier's "TRI-POWER" feature allows the amplifier to power a pair of satellites or coaxials and add on a single subwoofer. This means the amplifier is operating in stereo and mono at the same time. As previously mentioned earlier the minimum impedance for stereo is 2 ohms per channel and 4 ohms for mono. For this to all work together, passive crossovers must be utilized. These crossovers are a combination of coils and capacitors to creat a high pass for the mid/tweeter combination and a low pass for the subwoofer. A high pass crossover eliminates all frequencies below the crossover frequency (cutting the bass out of the highs). A low pass crossover eliminates all frequencies above the crossover frequency (cutting the highs out of the bass). The following crossover chart (6 dB per octave) is for your reference. In this application the low pass and high pass switch on the amplifier must be in the "OFF" position. The coils and capacitors are available through most electronic stores and most car audio dealers. See Fig. 5 for chart and diagram.

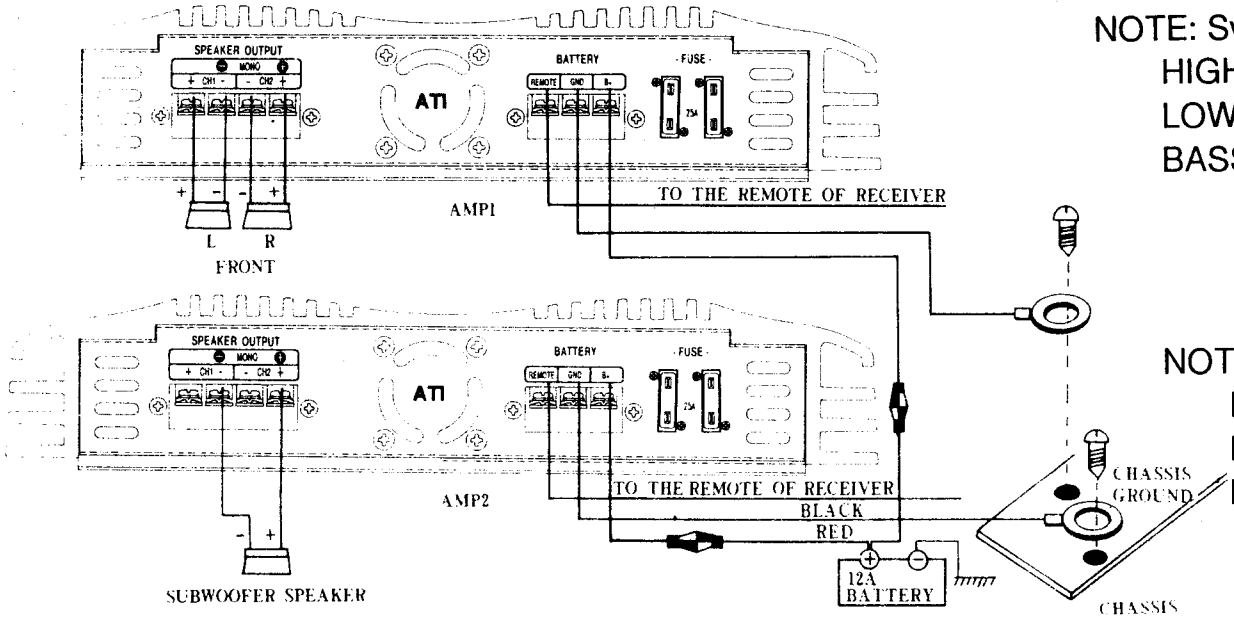
Note : For mono mode, connect the positive lead of the speaker to the (MONO+) terminal of the amplifier and the negative lead to the (MONO-) terminal.

(1) STEREO SINGLE AMPLIFIER CONNECTION



NOTE: Switch settings on front side
HIGH PASS FILTER -"120, 180 or OFF"
LOW PASS FILTER - "OFF"
BASS EQ - "OFF"

(2) STEREO AND MONO SUBWOOFER TWO AMPLIFIER CONNECTIONS



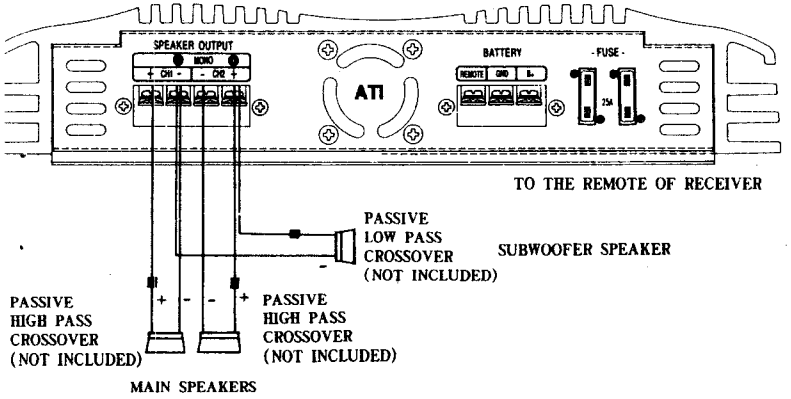
NOTE: Switch settings on front side
HIGH PASS FILTER - "120, 180 or OFF"
LOW PASS FILTER - "OFF"
BASS EQ - "OFF"

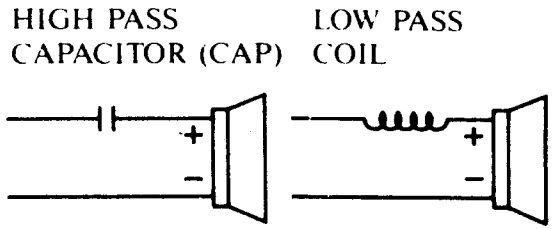
NOTE: Switch settings on front side
HIGH PASS FILTER - "OFF"
LOW PASS FILTER -"120" or "60"
BASS EQ "ON" or "OFF"

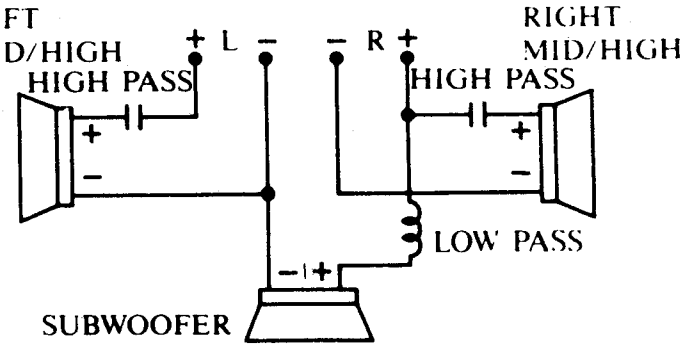
Fig. 4 Speaker Output Connections

Fig .6. Tri-Power Connections

CROSSOVER FREQUENCY IN HERTZ	SPEAKER IMPEDANCE					
	2 OHM		4 OHM		8 OHM	
	COIL	CAPACITOR	COIL	CAPACITOR	COIL	CAPACITOR
80	4.1 mH	1000 μF	8.2 mH	500 μF	16 mH	250 μF
100	3.1 mH	800 μF	6.2 mH	400 μF	12 mH	200 μF
130	2.4 mH	600 μF	4.7 mH	300 μF	10 mH	150 μF
200	1.6 mH	400 μF	3.3 mH	200 μF	6.8 mH	100 μF
260	1.2 mH	300 μF	2.4 mH	150 μF	4.7 mH	75 μF
400	0 .8 mH	200 μF	1.6 mH	100 μF	3.3 mH	50 μF
600	0 .5 mH	136 μF	1.0 mH	68 μF	2.0 mH	33 μF
800	0.41 mH	100 μF	0.82 mH	50 μF	1.6 mH	25 μF
1000	0.31 mH	78 μF	0.62 mH	38 μF	1.2 mH	20 μF
1200	0.25 mH	66 μF	0.51 mH	38 μF	1.0 mH	16 μF
1300	0.16 mH	44 μF	0.33 mH	22 μF	0.68 mH	10 μF
4000	0.08 mH	20 μF	0.16 mH	10 μF	0.33 mH	5 μF
6000	0.51 mH	14 μF	0.10 mH	6.8 μF	0.29 mH	3.3 μF







Power Connections

It is important to have good quality power and ground connections. Remember, to complete an electrical circuit, the ground connection is just as important as the positive power connection. Before any power connections are made, disconnect the ground cable at the battery. Minimum battery cable size is 10 gauge.

Ground-Connect the proper gauge ground wire to the amplifier "GND" terminal. Locate the position on the chassis of the car to which the amplifier is to be grounded. The surface must be free from any paint or dirt. This can be accomplished with a small grinding bit or wire wheel.

NOTE: Do not ground amplifier to the "frame" of the car, the frame on most cars and trucks is not grounded to the chassis (body). Solder or crimp ring terminal to ground wire. Predrill the prepped chassis metal to bolt the ground ring terminal with nut, bolt and lock washers. Insulate metal and connector with paint or silicon to prevent rust and oxidation. Silicon also works great to prevent nuts and bolts from working loose in a harsh environment of an automobile. Upon completion of ground connection, grab wire or connector and confirm that it is a solid connection. To prevent engine noise, it is recommended to ground the head unit and other audio electronics in the same location.

Remote Turn-on-Connect smaller light gauge wire to "REMOTE" terminal of amplifier and to remote/antenna turn-on output of head unit. If head unit is not equipped with a remote/antenna output, locate a wire that is controlled by the accessory position of the key. It is important to have the amplifier turn off with the radio or key. If the amplifier remains on, the result will most likely be a dead battery.

Positive-Connect the proper size wire to the amplifier "B+" terminal of amplifier. Run wire towards the fuse holder that is no greater than 18 inches from the battery. Remember, the fuse is to protect the safety of the car in the case of a short. Connect fuse holder to battery, however, do not install fuse at this time.

Adjustments

High pass filter-The "HIGH PASS FILTER" is a three position switch "180, 120, OFF". The electronic high pass filter cuts out the bass from the mids/highs and will pass all frequencies above 120 or 180 hertz. The final decision between "120" and "180" will be based on the final listening of the system and speaker's ability to play lower frequencies. If the amplifier is to power subwoopers place the "HIGH PASS FILTER" to the "OFF" position.

Low pass filter-The "LOW PASS FILTER" is a three position switch "120, 60, OFF". If the channels are only to be used to power subwoofers, the switch should be at either at the "60" or the "120" position. This will cut out all high frequencies above 60 or 120 hertz. The final decision between "60" and "120" will be based on the final listening of the system. If the amplifier is to power full range speakers place the "LOW PASS FILTER" to the "OFF" position.

After initial adjustments have been made, install fuse (same rating as that labeled on the amplifier) into the fuse holder at the battery.

Level adjustments- The sensitivity adjustments is to allow the amplifier to work with many different brands of head units. It allows input signal to vary between 250 millivolts to 2 volts from the head unit or other signal processor.

Start by setting the sensitivity adjustments to the "MIN"(2 volts). Using a cassette or compact disc that you are familar with, turn on head unit to the 3/4 volume setting. Slowly turn up sensitivity adjustment towards the "MAX"(250 milivolts) using a small flat head screw driver. Stop turning on the onset of distortion and turn back just a slight. The 3/4 volume setting is now the "maximum" volume for the head unit.

The goal is to keep the level control to the lowest setting yet still have enough signal to drive the amplifier. This is done to prevent over driving the amplifier and to keep system noise to a minimum. It is important not to over drive the speakers (at point of distortion) as this will cause permanent damage to the speakers. Also, if the amplifier itself is over driven, it could be damaged.

Bass EQ. The "BASS EQ" feature is the variable boost from 0 dB to + 6 dB. This may or may not be required for the system. If the BASS EQ is required switch it to the "ON" position and carefully adjust the BASS EQ LEVEL. Remember, a +6dB boost in signal requires the amplifier to work 10 times harder. Again, do not over drive the speakers or the amplifier.

Troubleshooting Guide

This section provides you with a catalog of amplifier symptoms and their probable causes and solutions. Before you consult this listing, make sure the vehicle's electrical system is working properly by verifying that other electical items(e.g. headlight, Windows etc.) still function correctly.

SYMPTOM	PROBABLE CAUSE	SOLUTION
No Sound	Low or No Remote Turn-On connections	Check remote turn-on voltage at amp and head unit
	Blown Fuse	Repalce with new fast-blow fuse
	Power wires not connected	Check butt splices or solder joints check Ground and Battery connections
	Blown speakers or not connceted	Use VOM or DVM to measure speaker coil impedance; check spaker wiring connections
Audio cycles on and off	Thermal Protection Circuits are properly shutting amplifier off each time it gets too hot	Check location for adequate ventialtion check speaker wiring for a short to chassis Check speaker impedance and refer to speaker conections
Distorted Audio	Input Sensitivity not set properly or damaged speaker cones	See adjustment procedure and check each step; inspect each speaker for damage and repair or suspected component
	Low turn-on voltage	Refer to head unit owner's manual
Audio level low	Mute circuits is on Head unit	Check electrical system for low voltage; check ground connection
Audio lacks	Speaker wired with wrong polarity, cause cancellation of bass frequencies	Check polarity of wires from amplifiers to each speaker as defined by the system design; check battery voltage at amplifier during operation
External fuse blowing	Incorrect wiring or short circuit	Refer to Electrical Installtion and check each installtion step
Whining noise on audio with engine running	Amplifier is picking up alternator noise	Install an in-line noise filter on the head unit's power wire; check alternator routing diodes or voltage regulator for proper operation. Check all grounds, check battery voltage
Ticking noise on audio with engine running	Amplifier is picking up radiated spark noise	Check RCA audio cables routes; Install an in-line noise filter on the head unit's power wire. Check spark plug wires

SPECIFICATIONS

■ **Amplifier Sections**	**XA-5450**
■ MAX POWER (EIAJ)	
● Mono Mode	450Wx1
● Stereo Mode	225Wx2
RMS Power(4 Ohms)	
● Mono Mode	220Wx1
● Stereo Mode	110Wx2
● THD	0.1%
● Power Bandwidth	20Hz - 20KHz
● Frequency Response	5 Hz - 80KHz
● Signal to Noise Ratio	102dB
● Damping Factor	40
● Channel Separation	〉65dB
Generals	
● Operating Voltage (Negative Ground)	12V DC
● Speaker Impedance (Minimum)	2 ohms
● Dimensions(Inches)	
● Width	13 3/8
● Height	2 3/8
● Depth	11 7/8

Note : Specifications & design subject to change without notice for improvement.